she has made three reports on her studies.[10] The work has been carried on in Southern England, and careful effort was made to compare conditions in several different counties. It is concluded that some weeds are ubiquists, occurring on all soils, whereas other weeds are definitely symptomatic. Symptomatic species are most in evidence on chalk, although it is to be noted that most of the weeds which are calcifuges in Bedfordshire are calcicoles in Wiltshire and Somerset. Examples of such reversal are *Chenopodium album* and *Bartsia Odontites; Poa annua* is about the only consistent calcifuge observed. In one place a mingling of chalk plants and "acid plants" was explained by a non-calcareous surface soil overlying a chalk subsoil. In some cases the character of the crop influences the weed population, as in certain leguminous seed crops. Some plants, as the mayweeds (*Anthemis*, *Matricaria*), are impatient of competition.—H. C. COWLES.

Morphology of Macroglossum.—*Macroglossum* is a new generic type of the Marattiaceae described in 1909 by COPELAND from material obtained from Borneo. A recent visit to this region enabled CAMPBELL to secure material of this fern, and he has now published an account of its structure and affinities.[11] The genus now comprises two species, the second one having been found growing in the botanical gardens at Buitenzorg, but of unknown origin. The species studied is a large plant, the leaves reaching sometimes a length of 4 meters. It belongs to the *Angiopteris* group, related apparently most nearly to *Archangiopteris*. It differs much in general appearance from *Angiopteris*, as well as in its much elongated and partially immersed sori. The sporangia also are smaller and very much more numerous than those of *Angiopteris*. The gametophyte may reach a length of 3 cm., and branching is not uncommon. The antheridia occur on both surfaces, and the number of sperm mother cells is probably greater than in any other of the Marattiaceae. The embryo develops a conspicuous suspensor, as in *Danaea*. The author also describes certain anatomical details, comparing them with those of the other Marattiaceae.—J. M. C.

Leaf-sheath trichomes in grasses.—In many grasses, especially those of xerophytic and alpine habitats, the leaf sheaths do not decay immediately after death. Instead of this they remain, forming a sort of mantle about the young sheaths. That this feature is especially characteristic of xerophytic grasses was noted in 1890 by HACKEL, who regarded the mantles as having a protective function, tending to reduce transpiration. H. BROCKMANN-JEROSCH[12]

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[10] BRENCHLEY, WINIFRED E., The weeds of arable land in relation to the soils on which they grow. Ann. Botany **25**:155–165. 1911; **26**:95–109. 1912; **27**:141–166. 1913.

[11] CAMPBELL, D. H., The structure and affinities of *Macroglossum Alidae* Copeland. Ann. Botany **28**:651–669. *pls. 46–48. figs. 8.* 1914.

[12] BROCKMANN-JEROSCH, H., Die Trichome der Blattscheiden bei Gräsern. Ber. Deutsch. Bot. Gesells. **31**:590–594. *pl. 1.* 1914.

calls this interpretation in question. For example, in *Festuca spadicea* these persistent sheaths are found in the soil, where protection from transpiration is of little importance. A more striking observation was made on *Festuca varia*, a species that grows in winter while the soil about its roots is still frozen. Thinking that there might be absorptive organs beneath the mantles, the author finds that downward-pointing hairs are present in this position in many of these grasses. Mostly from such circumstantial evidence, BROCKMANN-JEROSCH postulates that these hairs are water-absorptive organs. Such an observation needs experimental corroboration, as the author frankly recognizes.—H. C. COWLES.

Soil studies.—E. E. FREE[13] of the U.S. Bureau of Soils has brought together the essential features of our knowledge of soil physics in admirable form for use by physiologists and ecologists. The material is treated under the following heads: the physical condition of soils, the movements of soil water, soil water and the plant, the physical constants of soils, and soil temperature.

FREE has also published an elaborate paper on soil movement by wind.[14] While this treatise will be of value in the first instance to physiographers, it will also be of great interest to all ecologists who are interested in the vegetation of such wind deposits as sand dunes or loess. Among the topics treated are the mechanics of wind translocation, drifting sand and sand dunes, dust storms and dust falls, atmospheric dust, geologic formations of eolian origin, and volcanic dust as soil material. At the close is a remarkably complete bibliographical index of eolian geology; in the compilation of this index FREE was aided by S. C. STUNTZ.—H. C. COWLES.

Defoliation and wood structure.—In recent years many trees of the European larch in the English Lake District have been repeatedly defoliated by the large larch sawfly. Some of the trees have been studied by HARPER[15] to determine the influence on wood structure. Such defoliation means starvation to a greater or less degree, and starvation affects both the amount of growth and the structure of the wood. In the lower parts of the tree, where the rings ordinarily are narrower than they are above, growth may cease altogether; higher up, where there is more growth, the rings may not completely encircle the tree. Even before this effect is seen, there is a reduction in the wall thickening of the autumn wood. This situation is related to an actual lack in the foods necessary to build up these tissues to the usual amount.—H. C. COWLES.

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[13] FREE, E. E., Studies in soil physics. Plant World **14**:29–39, 59–66, 110–119, 164–176, 186–190. 1911.

[14] FREE, E. E., The movement of soil material by the wind. U.S. Bureau of Soils, Bull. 68. pp. 272. *pls.* 5. 1911.

[15] HARPER, A. G., Defoliation: its effects upon the growth and structure of the wood of *Larix*. Ann. Botany **27**:621–642. *pls.* 2. *figs.* 2. 1913.